Amendment to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-40.   (Canceled)

41.   (Currently Amended)   A combinatorial ~~different sequence~~ solid phase bound library of ~~different sequence~~ peptide or peptidomimetic members forming conformationally constrained reverse turn structures which mimic reverse turn structures when complexed with a metal ion ~~synthesized on solid phase~~, where each constituent library member ~~comprises~~ consists of:

(a)   a predetermined sequence of between ~~three~~ four and about twenty amino acid residues, mimics of amino acid residues or combinations thereof, bound to solid phase characterized by (i) a sequence of ~~two or more~~ three amino acid residues, mimics of amino acid residues or combinations thereof, forming a metal ion-binding backbone for complexing with a metal ion and comprising at least one residue with at least one sulfur available for binding to a metal ion in solution wherein the metal ion is selected from the group of metals consisting of technetium and rhenium, (ii) one or more amino acid residues, mimics of amino acid residues or combinations thereof, at the N- or C- terminus of the metal ion-binding backbone, or at both the N- and C-terminus of the metal ion-binding backbone, and (iii) a cleavable bond attaching the sequence to solid phase; and

(b)   a ~~unique selection of~~ sequence of amino acid residues, mimics of amino acid residues or combinations thereof that differs from other library members in either the selection or the sequence, or both, of the amino acid residues, mimics of amino acid residues or combinations thereof.

42.   (Canceled)

43.   (Previously Presented)   The combinatorial library of claim 41 wherein the metal ion-binding backbone further comprises at least one residue with at least one nitrogen available for binding to a metal ion.

44.   (Previously Presented)   The combinatorial library of claim 41 wherein the metal ion-

binding backbone comprises three residues forming an N_3S_1 metal ion complexation group.

45.   (Previously Presented)   The combinatorial library of claim 41 wherein the at least one sulfur is protected by a cleavable S-protecting group.

46.   (Previously Presented)   The combinatorial library of claim 45 wherein the cleavable S-protecting group is trityl.

47.   (Currently Amended)   The combinatorial library of claim 41 wherein the ~~unique selection or~~ sequence <u>that differs from other library members in either the selection or sequence, or both, of the amino acid residues, mimics of amino acid residues or combinations thereof,</u> occurs in the metal ion-binding backbone.

48.   (Currently Amended)   The combinatorial library of claim 41 wherein the ~~unique selection or~~ sequence <u>that differs from other library members in either the selection or sequence, or both, of the amino acid residues, mimics of amino acid residues or combinations thereof,</u> occurs in the one or more amino acid residues, mimics of amino acid residues or combinations thereof, at the N- or C-terminus of the metal ion-binding backbone, or at both the N- and C-terminus of the metal ion-binding backbone.

49.   (Previously Presented)   The combinatorial library of claim 41 wherein the at least one residue containing at least one sulfur available for binding to a metal ion is L- or D-cysteine; L- or D-penicillamine; L- or D-homocysteine; 2'-mercapto-tryptophan; N^β-(2 mercaptoethane)-α,β-diaminopropionic acid; 2-mercaptoethylamine; thioglycolic acid; mercaptoprorionic acid; 2-mercaptoaniline; or 2-mercaptosuccinic acid.

50.   (Currently Amended)   A combinatorial library of ~~different sequence~~ peptide or peptidomimetic members synthesized in solution <u>and forming conformationally constrained structures which mimic reverse turn structures when complexed with a metal ion</u>, where each constituent library member <u>consists of</u> ~~comprises~~:

(a)   a predetermined sequence of between ~~three~~ four and about twenty amino acid residues and mimics of amino acid residues in solution characterized by (i) a sequence of ~~two or more~~ three amino acid residues, mimics of amino acid residues or combinations thereof forming a metal ion-binding backbone for complexing with a metal ion and comprising at least one residue with at least one sulfur available for binding to a metal ion in solution wherein the metal ion is selected from the group of metals consisting of technetium and rhenium, and (ii) one or more amino acid residues, mimics of amino acid residues or combinations thereof at the N- or C- terminus of the metal ion-binding backbone, or at both the N- and C-terminus of the metal ion-binding backbone; and

(b)   a ~~unique selection or~~ sequence of amino acid residues, mimics of amino acid residues or combinations thereof that differs from other library members in either the selection or the sequence, or both, of the amino acid residues, mimics of amino acid residues or combinations thereof.

51.   (Canceled)

52.   (Previously Presented)   The combinatorial library of claim 50 wherein the metal ion-binding backbone further comprises at least one residue with at least one nitrogen available for binding to a metal ion.

53.   (Previously Presented)   The combinatorial library of claim 50 wherein the metal ion-binding backbone comprises three residues forming an N_3S_1 metal ion complexation group.

54.   (Previously Presented)   The combinatorial library of claim 50 wherein the at least one sulfur is protected by a cleavable S-protecting group.

55.   (Previously Presented)   The combinatorial library of claim 54 wherein the cleavable S-protecting group is trityl.

56.   (Currently Amended)   The combinatorial library of claim 50 wherein the ~~unique selection or~~ sequence that differs from other library members in either the selection or sequence, or both, of the amino acid residues, mimics of amino acid residues or combinations thereof, occurs in the metal

ion-binding backbone.

57.   (Currently Amended)   The combinatorial library of claim 50 wherein the ~~unique~~ ~~selection or~~ sequence <u>that differs from other library members in either the selection or sequence, or both, of the amino acid residues, mimics of amino acid residues or combinations thereof,</u> occurs in the one or more amino acid residues, mimics of amino acid residues or combinations thereof, at the N- or C-terminus of the metal ion-binding backbone, or at both the N- and C-terminus of the metal ion-binding backbone.

58.   (Previously Presented)   The combinatorial library of claim 50 wherein the at least one residue containing at least one sulfur available for binding to a metal ion is L- or D-cysteine; L- or D-penicillamine; L- or D-homocysteine; 2'-mercapto-tryptophan; N^β-(2 mercaptoethane)-α,β-diaminopropionic acid; 2-mercaptoethylamine; thioglycolic acid; mercaptoproprionic acid; 2-mercaptoaniline; or 2-mercaptosuccinic acid.

59.   (Previously Presented)   The combinatorial library of claim 50 wherein each constituent library member further comprises a metal ion complexed to the metal ion-binding backbone.

60.   (Withdrawn) A method for generating a metallopeptide or metallopeptidomimetic combinatorial library, comprising the steps of:

(a)   constructing a library containing a plurality of sequences of the formula R_1-X-R_2 cleavably bound to solid phase, wherein

(i)   X comprises at least two amino acid residues, mimics of amino acid residues or combinations thereof, with at least one of said residues comprising at least one nitrogen atom available to complex with the coordination sphere of a metal ion, the metal ion to be provided, and with at least one of said residues comprising at least one sulfur atom available to complex with the coordination sphere of a metal ion, the metal ion to be provided;

(ii) R_1 and R_2 each comprise from 0 to about 20 amino acid residues, mimics of amino acid residues or combinations thereof, provided that R_1 and R_2 comprise at least 1 amino acid residue or mimic of an amino acid residue, and provided that between at least two of the plurality of sequences of the formula R_1-X-R_2 at least either R_1 or R_2 differ in at least either the sequence of residues

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or the selection of residues;

(b)   complexing a metal ion to X;

wherein the resulting metal ion-complexed sequences form a metallopeptide or metallopeptidomimetic combinatorial library.

61.   (Withdrawn) The method of claim 60 wherein at least one of said residues comprising at least one sulfur atom is L- or D-cysteine; L- or D-penicillamine; L- or D-homocysteine; 2'-mercapto-tryptophan; N^β-(2 mercaptoethane)-α,β-diaminopropionic acid; 2-mercaptoethylamine; thioglycolic acid; mercaptoproprionic acid; 2-mercaptoaniline; or 2-mercaptosuccinic acid.

62.   (Withdrawn) The method of claim 60 wherein X comprises three residues forming an N_3S_1 metal ion complexation group.

63.   (Previously Presented) The combinatorial library of claim 41, wherein each constituent library member further comprises a metal ion complexed to the metal ion-binding backbone.

64.   (Currently Amended) The combinatorial library of claim 63, wherein the metal ion is ~~selected from the group of metals consisting of technetium and~~ rhenium.

65.   (Currently Amended) The combinatorial library of claim 44, further comprising a metal ion selected from the group of metals consisting of technetium and rhenium complexed to the N_3S_1 metal ion complexation group.

66.   (Currently Amended) The combinatorial library of claim 65, wherein the metal ion is ~~selected from the group of metals consisting of technetium and~~ rhenium.

67.   (Canceled)

68.	(Currently Amended) The combinatorial library of ~~claim 59~~ claim 67, wherein the metal ion is ~~selected from the group of metals consisting of technetium and~~ rhenium.

69.	(Currently Amended) The combinatorial library of claim 52, further comprising a metal ion selected from the group of consisting of technetium and rhenium complexed to the N_3S_1 metal ion complexation group.

70.	(Currently Amended) The combinatorial library of claim 69, wherein the metal ion is ~~selected from the group of consisting of technetium and~~ rhenium.

71.	(Currently Amended) A combinatorial library comprising compounds of the structure:

R_1-X-R_2
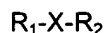
wherein X is a complexing backbone for complexing a rhenium or technetium metal ion ~~comprising between two and four~~ with three amino acids, wherein at least two amino acids are contiguous and at least one residue comprises at least one sulfur available for binding to a metal ion, so that substantially all of the valences of the metal ion are satisfied upon complexation of the metal ion with X;

wherein R_1 and R_2 each comprise from 0 to about 20 amino acids and together comprise at least one amino acid; and

~~a metal ion complexed to X;~~

wherein R_1-X-R_2 has a conformationally constrained secondary structure comprising at least a part of X and at least a part of R_1 or R_2 which mimics a reverse turn structure upon complexation of a metal ion to X.

72.	(Currently Amended) The combinatorial library of claim 71, ~~wherein the metal ion is an ionic form of the element selected from the group consisting of iron, cobalt, nickel, cooper, zinc, manganese, arsenic, selenium, technetium, ruthenium, palladium, silver, cadmium, indium, antimony,~~

~~rhenium, osmium, iridium, platinum, gold, mercury, thallium, lead, bismuth, polonium or astatine~~ <u>further</u> <u>comprising a rhenium or technetium metal ion complexed to X</u>.

73. (Currently Amended) The combinatorial library of <u>claim 72</u> ~~claim 71~~, wherein the metal ion is ~~selected from the group of consisting of technetium and~~ rhenium.

74. (Previously Presented) The combinatorial library of claim 71, wherein the at least one residue containing at least one sulfur available for binding to a metal ion is L- or D-cysteine; L- or D-penicillamine; L- or D-homocysteine; 2'-mercapto-tryptophan; N^β-(2 mercaptoethane)-α,β-diaminopropionic acid; 2-mercaptoethylamine; thioglycolic acid; mercaptoproprionic acid; 2-mercaptoaniline; or 2-mercaptosuccinic acid.

75. (Previously Presented) The combinatorial library of claim 71 wherein X comprises at least one residue with at least one nitrogen available for binding to a metal ion.

76. (Previously Presented) The combinatorial library of claim 71 wherein X is three residues forming an N_3S_1 metal ion complexing backbone.

77. (Previously Presented) The combinatorial library of claim 71, wherein the conformationally constrained secondary structure is a specific regional secondary structure which is a mimic of a reverse turn structure.

78. (Previously Presented) The combinatorial library of claim 71, wherein if less than all of the valences of the metal ion are otherwise satisfied upon complexation of the metal ion with the amino acids comprising X, then X also comprises a derivatized amino acid or spacer sequence, which

derivatized amino acid or spacer sequence comprises at least one nitrogen, sulfur or oxygen atom available for complexing with the available valences of the metal ion, so that all of said valences of the metal ion are satisfied upon complexation of the metal ion with X.

79. (Currently Amended) The combinatorial library of claim 71, wherein the compounds of the structure R_1-X-R_2 are linear peptides ~~complexed to a metal~~ ion.

80. (Currently Amended) The combinatorial library of claim 71, wherein each of R_1 and R_2 comprise at least one amino acid, and further wherein R_1 and R_2 are joined by a cyclic bridge, whereby R_1-X-R_2 are cyclic peptides ~~complexed to a metal ion~~.

81. (Previously Presented) The combinatorial library of claim 71, wherein the compounds of the structure R_1-X-R_2 are bound to solid phase.